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A Comparison of Total Direct Costs of Escitalopram vs. Paroxetine in Generalized Anxiety Disorder (GAD)

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Abstract

Background: All SSRIs are considered first-line treatment for generalized anxiety disorder (GAD), however their adverse events profiles differ and may impact quality of care and overall costs.

Objective: Based on a prospective, flexible-dose, 24-week clinical trial, this analysis compares the total direct costs of escitalopram (n = 61) and paroxetine (n = 62) as first-line therapies for GAD.

Methods: A cost minimization model from a managed care perspective was developed. Estimated health care resources use for treatment drugs, hospitalizations and adverse events were based on the prospectively collected clinical data. Resource use due to switching drug treatment following withdraw were modeled based on expert opinion. Escitalopram daily costs were $2.01/day (mean AWP for a 20 mg/day and 10 mg/day) and for generic paroxetine 0.43/day (assuming an 80% discount from branded paroxetine AWP (30 mg/day).

Results: Escitalopram offered costs savings (13%) over paroxetine in total costs of care due primarily to fewer hospitalization days. Sensitivity analysis supported the robustness of the model indicating that escitalopram treatment yields savings in total costs reaching the breakeven point when daily paroxetine treatment costs are $0.05 per day.

Conclusions: According to this model switching 100 patients from paroxetine to escitalopram results in savings of $4838 in direct medical costs to HMO. These costs savings can be used to treat 13 new patients with escitalopram at an average total cost of $350 per patient.

Introduction

Anxiety disorders are considered one of the most common psychiatric illnesses in America,[1] associated with high clinical, economic and personal costs.[2-5] Lifetime prevalence for GAD is approximately 5 percent.[6] The age of onset is typically before 25 years of age and the incidence is about twice as high in women than in men. The cost burden associated with anxiety disorders in the United States was estimated at $42.2 billion or $1542 per diagnosed patient.[7] While SSRIs are a more tolerable class of agents for anxiety disorders they do differ in tolerability and safety. These differences may have important implications for patient care and costs of care to both patients and payers.

Objective

To compare the total direct costs to managed care organizations of escitalopram and paroxetine when used as first line treatment for GAD based on a prospective flexible dose, 24-week clinical trial.

Methods

Clinical Background

This cost minimization model is based on a double-blind, randomized, parallel-group, flexible-dose, multicenter trial. Study duration consisted of a 24-week double-blind period with a one week placebo lead-in and a two week double-blind, down-titration period.[8] A total of 123 patients received at least one dose of study medication, escitalopram 10-20 mg/day (n = 61), or the comparator, paroxetine 20-50 mg/day (n = 62). Selected inclusion criteria included:

- HAMA ≥ 18
- HAMD ≤ 17
- Covi Anxiety Scale score > Raskin Depression Scale score

There were no statistically significant differences in clinical efficacy outcomes between the two treatment arms. Patient disposition is displayed in Table 1 and the most frequent AEs are displayed in Table 2.

Table 1. Patient Disposition

	Escitalopram n = 61	Paroxetine n = 62
Completed, n (%)	39 (64.00)	33 (53.00)
Withdrawn, n (%)	22 (36.00)	29 (47.00)
Withdrawn Due to AE, n (%)	4 (6.56)	14 (22.58)
Withdrawn Due to Insufficient Response, n (%)	0 (0.00)	2 (3.20)
Treatment Duration (Completed), days	180	180
Treatment Duration (Withdrawn), days	74	65

Table 2. Most Frequent Treatment Emergent Adverse Events (≥10% in Any Treatment Group)

Preferred Term	Escitalopram (n = 61) n (%)	Paroxetine (n = 62) n (%)
Patients with at Least 1 TEAE	47 (77.0)	55 (88.7)
Ejaculation Disorder*	4 (14.8)	6 (30.0)
Anorgasmia**	2 (5.9)	11 (26.2)
Insomnia	9 (14.8)	16 (25.8)
Libido Decreased	3 (4.9)	14 (22.6)

* Based on percentage of male patients (escitalopram n = 27; paroxetine n = 20).
** Based on percentage of female patients (escitalopram n = 34; paroxetine n = 42).

Table 2. Most Frequent Treatment Emergent Adverse Events (≥10% in Any Treatment Group)

Preferred Term	Escitalopram (n = 61) n (%)	Paroxetine (n = 62) n (%)
Diarrhea	13 (21.3)	5 (8.1)
Headache	7 (11.5)	13 (21.0)
Dry Mouth	8 (13.1)	10 (16.1)
Somnolence	8 (13.1)	10 (16.1)
Nausea	9 (14.8)	8 (12.9)
Upper Respiratory Tract Infection	9 (14.8)	3 (4.8)
Constipation	1 (1.6)	9 (14.5)
Fatigue	7 (11.5)	5 (8.1)
Inflicted Injury	3 (4.9)	7 (11.3)
Sweating Increased	2 (3.3)	7 (11.3)

* Based on percentage of male patients (escitalopram n = 27; paroxetine n = 20).
** Based on percentage of female patients (escitalopram n = 34; paroxetine n = 42).

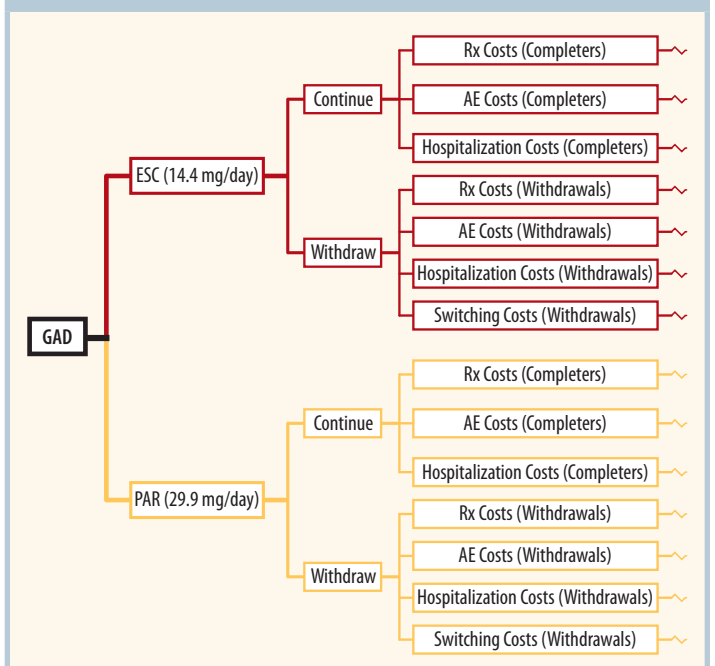
Cost Minimization Model

Model assumptions:

- There are no clinical differences between the compared treatments.
- Only costs need to be compared.
- The treatment with least costs is considered superior.
- Costs are calculated from the perspective of managed care organizations.

A base case was constructed according to resource use data collected in the trial (see Figure 1). Robustness of the base case result was tested using a sensitivity analysis. Model results are considered robust when changes (increase/decrease) in model parameters and assumptions do not alter the conclusion derived from the base case result. The larger the magnitude of the changes assumed in the sensitivity analysis without altering the base case results the more robust the model.

Figure 1. Cost Minimization Treatment Pathway



Resource Use

Four types of resource utilization data were included in the model:

- Treatment Drugs: Drug utilization data was based on the observed mean daily dose used in the clinical trial. Mean daily dose was multiplied by the number of drug treatment days used by patients who completed the trial and those who withdrew.
- Hospitalizations: Number of hospitalization days were based on the observed hospitalization days in the trial irrespective of cause.
- Treatment of Adverse Events: Resource use due to adverse events (AEs) was obtained by matching each AE reported in the study with its concomitant-medication (CM). Duration of CM use was modeled as reported in the study. CM that required prescriptions were assumed to require on office visit.
- Switching treatment: Patients who withdrew from treatment were assumed in the model to switch to another drug requiring additional office visits. Patients who withdrew due to non-response were assumed to require 2 physician visits. Patients who withdrew due to AEs were assumed to require 4 physician visits. These assumptions were based on expert medical opinion.

Costs

- Treatment drug:
  - Mean daily utilization in the study for escitalopram was 14.4 mg/day. It was assumed for modeling purposes that 50% of patients used the 10 mg/day pill and the other 50% used the 20 mg/day pill. Mean AWP price assuming a 20% discount to HMO was $2.01.[9]
  - Mean daily dose for paroxetine in the study was 29.90 mg/day therefore it was assumed all patients used the 30 mg/day pill. Generic price for paroxetine was assumed to have an 80% discount from AWP resulting in costs of $0.43 per day.[9]
- Hospitalizations:
  - Hospitalization costs were modeled as costs for room and board only. Average US costs per admission day is $1585.[10] To obtain total costs, daily hospital costs were multiplied by number of hospitalization days reported in the study.
- Office visits:
  - Office visits were all assumed to be regular visits and were priced at $63 per visit.[10]
- Concomitant-medications:
  - Duration and dose for each concomitant medication used was modeled as observed in the clinical database and a generic AWP was applied when available, otherwise a branded price was applied.

Sensitivity Analyses

To test the robustness of the model the breakeven point was calculated for each resource use and some costs parameters. The breakeven point is achieved when the managed care organization incurs the same total costs for both treatments and from an economic perspective should therefore be indifferent between the two treatments. The following sensitivity analyses were reported:

- A reduction in hospitalization rates in the paroxetine arm.
- A reduction in the number of patient who withdrew from treatment in the paroxetine arm.
- A reduction in the daily costs of paroxetine.

Results

- Escitalopram offered 13% cost savings over paroxetine in total costs.
- Escitalopram is associated with lower costs in each resource use category.
- Costs savings in the escitalopram arm were due mostly to lower hospitalization costs.

Table 3. Cost-Minimization Model

	Escitalopram n = 61	Paroxetine n = 62	% Diff
Cost Daily Dose ($)	2.01	0.43	-79%
Drug Costs (Completed)	14,110	2,554	-82%
Drug Costs (Withdrawn)	3,272	811	-75%
Cost of Switching (1st Order)	3,224	5,332	65%
Cost of ConMeds Due to AEs	234	726	211%
Cost of Physician Visits	756	1,260	67%
Cost of Hospitalizations	0.00	14,267	100%
Total Costs ($)	21,596	24,950	16%
Cost per Patient ($)	354	402	13%

Sensitivity Analysis

Breakeven point analysis indicates that the model is robust. Escitalopram is a cost saving strategy even if we assume:

- Hospitalization days: Reduction of up to 20% in days of hospitalization in the paroxetine arm.
- Treatment withdrawals: Reduction of up to 55% in the number of patients who withdraw from treatment in the paroxetine arm.
- Paroxetine price: Reduction in the daily price of paroxetine up to $0.05 per daily treatment.

Discussion

- This analysis is based on the use of the branded paroxetine product used in the clinical trial. Performance of generic paroxetine in the HMO setting may be inferior and associated with higher AEs and hospitalization.
- While escitalopram appears to be less costly in all resource use categories the results of this model are strongly influenced by the observed rate of hospitalization in the trial. Further empirical research in the HMO setting is needed to further validate this model.

Conclusions

According to this model, treating the next 100 patients with escitalopram instead of paroxetine could result in costs savings of $4838. These costs savings could be used to treat 13 new patients with escitalopram at an average total cost of $350 per patient.

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